



CDW CONSULTANTS, INC.
CIVIL & ENVIRONMENTAL ENGINEERS

**PHASE I ENVIRONMENTAL SITE ASSESSMENT
(ASTM E 1527-13)**

City of Waltham
240 and 225-227 Beaver Street
Waltham, Massachusetts 02452

July 2019

Prepared for:

City of Waltham
119 School Street
Waltham, Massachusetts 02451

CDW Project #1830.00

1-5
of
1497



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I EXECUTIVE SUMMARY

CDW Consultants, Inc. (CDW) conducted an investigation of the properties located at 240 Beaver Street and 225-227 Beaver Street, in Waltham, Massachusetts (MA) (the "Site") on behalf of the City of Waltham. The Site includes two separate parcels of land totaling 58.7 acres. The Site contains one main 7,474 square foot administration building built in 1948 and two other support buildings and greenhouses. The properties are owned by the Commonwealth of Massachusetts and are listed on the City Assessor database under the following parcel identification numbers: R053 003 0001 and R053 003 0014 (240 Beaver Street) and R054 001 0001 (225-227 Beaver Street). Figure 1 depicts the Site locus. Figures 2 and 3 are Site Plans for 225-227 Beaver Street and 240 Beaver Street, respectively.

The Site investigation was conducted in general conformance with the ASTM International (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E1527-13) and the Massachusetts General Laws (MGL) Part I, Title II, Chapter 21E: Massachusetts Oil and Hazardous Material Release Prevention and Response Act.

On April 30, 2019, CDW personnel performed a Site reconnaissance to conduct a general visual inspection of the Site, observe the interior of the Site building, and document existing and observable uses of the Site and adjacent properties. A User Questionnaire was completed by Mr. Fred Leland, Maintenance for the facility.

The investigation conducted by CDW personnel included a review of available federal, state, and local environmental agency records to identify the presence or likely presence of Recognized Environmental Conditions (RECs), Historical Recognized Environmental Condition (HRECs) and Controlled Recognized Environmental Condition (CRECs).

The following CREC was identified during the assessment:

A CREC was identified on the northern Parcel 2 located at 225-227 Beaver Street where a portion of the parcel is identified as a Massachusetts Waste Disposal Site that has been assigned Release Tracking Number (RTN) 3-28049 for a release of heavy metals. A Class C-1 Response Action Outcome (RAO) was filed with Massachusetts Department of Environmental Protection (MassDEP) in November 2011 stating a condition of No Significant Risk of harm to human health exists for all current uses of the Disposal Site Area (DSA) and that it is infeasible to reach a Permanent Solution. The C1 RAO stated the disposal site boundary must be controlled with a fence. In 2011, a 6-foot tall chain link fence was installed around the DSA. A Periodic Review is conducted every five years. The last Periodic Review was conducted in July 2016 by Ramboll Environ.



The following HRECs were identified during the assessment:

- An HREC was identified on the southern Parcel 1 located at 240 Beaver Street where a portion of the parcel is listed as a Massachusetts Waste Disposal Site that has been assigned Release Tracking Number 3-28048 for a release of oil. A Class B-1 RAO was submitted to MassDEP on October 5, 2009 as assessments of the release have demonstrated that No Significant Risk exists as a result of the release and therefore site closure has been achieved.
- An HREC was identified on the southern Parcel 1 located at 240 Beaver Street where a portion of the parcel is listed as a Massachusetts Waste Disposal Site that has been assigned Release Tracking Number 3-28050 for a release condition of heavy metals in soil. A Class A-1 RAO was submitted to MassDEP on October 11, 2009 after soil remediation was completed, demonstrating that No Significant Risk exists as a result of the release and therefore site closure has been achieved.

Parcel 1 (240 Beaver Street) was the site of an upland fly ash research area, and Parcel 2 (225-227 Beaver Street) was the site of a wetlands fly ash research area. According to the maintenance foreman for Parcel 1, arsenic based pesticides and herbicides had been stored on-site, and used in the past inside the greenhouses.

An asbestos survey was beyond the scope of this assessment. However, it was previously documented in the document entitled, Waltham Experiment Station, Study of Existing Conditions, Development Potential, and Alternative Future Development Options. The section on the Regulated Building Materials Survey (RBMS) identified the following locations contained asbestos containing materials (ACM):

- Countertops and panels in the Parcel 1 Administration Building;
- Inside the laboratory, inside the sink countertops and panels in the Parcel 1 Gray Building;
- In the boiler smokestack in the Parcel 1 Boiler Building;
- In the linoleum floor located inside the Parcel 2 Farm House;
- In the asphalt roof shingles and transite panels within the Parcel 2 Main Barn;
- In the building materials within the Parcel 2 cow barn;
- In the building materials and shingles of Parcel 2 sheds 1 and 2.

No assessment of the potential for asbestos in soil was reviewed or performed as part of this scope or



DRAFT

**RELEASE ABATEMENT MEASURE PLAN
& TSCA PERFORMANCE BASED CLEANUP PLAN
240 Beaver Street
Waltham, MA**

RTNs 3-36027 and 3-36180

Prepared for

City of Waltham
119 School Street
Waltham, MA 02451

Prepared by
CDW Consultants, Inc.
4 California Avenue
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September 22, 2022

CDW Project No. 1830.20



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INTRODUCTION

CDW Consultants, Inc. (CDW) has been retained by the City of Waltham to prepare a Release Abatement Measure (RAM) Plan and Toxic Substances Control Act (TSCA) Performance Based Cleanup Plan for the property located at 240 Beaver Street in Waltham, Massachusetts (the "Site"). The RAM addresses the excavation and off-Site disposal of up to 500 cubic yards of soil from an area contaminated with PCBs, TPH, pesticides and heavy metals. The Site was assigned Release Tracking Numbers (RTN) 3-36027 and 3-36180 by the Massachusetts Department of Environmental Protection (MassDEP) in December 2019 and April 2020, respectively. The purpose of this plan is to comply with 310 CMR 40.0440 and 40.1067 of the Massachusetts Contingency Plan (MCP), which allows the implementation of accelerated response actions to reduce risks at certain disposal sites.

1.0 RESPONSIBILITY

DCR is the potentially responsible party. The person assuming the responsibility for conducting the RAM is the following:

City of Waltham
Ms. Jeannette A. McCarthy
610 Main Street
Waltham, MA 02451
(781) 314-3000

The RAM Plan was prepared by the Licensed Site Professional below:

Brian J. Miller, LSP
CDW Consultants, Inc.
4 California Avenue
Framingham, MA 01701
508-875-2657

2.0 SITE CONDITIONS AND HISTORY

The Site consists of an approximate ¼ acre portion of 240 Beaver Street located within a wooded area on the southern portion of the property. The disposal site is visually defined by a clearing in the wooded area, and where fill material was observed. Visual evidence of filling at the disposal Site showed cinder block, concrete, wood, glass, stone and plastic bottles. There was also evidence of historic fill as defined by the MCP. Soil with concentrations of lead, chromium and 4,4-DDT exceeding MCP Reportable Concentrations was found and is associated with MassDEP RTN 3-



36027. A smaller area of PCBs in soil exceeding RCs is also present within the larger area, and is associated with RTN 3-36180. A Site Plan is included as Figure 2.

The Site was recently acquired by the City of Waltham from the Commonwealth of Massachusetts. The property has been occupied by the University of Massachusetts Agriculture Experiment Station since the 1920's. Various tenants currently occupy the property.

3.0 PREVIOUS ASSESSMENTS AND RESPONSE ACTIONS BY OTHERS

RTN 3-36027

A Phase I and II assessment was conducted at the Site by CDW in 2019 and 2020. Total chromium and lead were detected above MCP Reporting Category RCS-1 thresholds at boring location GP1-7 at a depth of 10-12 feet. 4,4-DDT was detected above MCP RCS-1 thresholds at a depth of 3-5 feet in GP1-7. Dissolved metals, pesticides and VOCs were detected in groundwater at the Site, but no MCP reporting thresholds were exceeded. This release was reported to MassDEP on December 4, 2019. Additional sampling was conducted in the area of GP1-7 in December 2019 to delineate the extent of contamination. Borings GP4-1 through GP4-9 were advanced and microscopic analysis for coal, coal ash and wood ash was conducted to identify if lead was the result of historic fill observed at the Site. As a result, the impacts of metals and pesticides appeared to be limited to GP1-7. Depth to groundwater ranges from approximately 10.82 to 12.69 feet with a southwesterly flow direction.

A Revised Release Notification Form (RNF) was submitted for this RTN on September 20, 2022, based on the results of soil precharacterization sampling. Concentrations of TPH, 4,4'-DDD, dieldrin, and hexachlorobenzene, which were not previously identified, exceeded applicable Reportable Concentrations for S-1 soil. The concentration of 4,4'-DDT identified was significantly higher than initially detected and, therefore, the RNF was revised with the higher concentration.

RTN 3-36180

This release was reported to MassDEP on April 14, 2020, due to the detection of PCBs in soil at location GP4-2 at a depth of 6-8 feet. This boring is located within the disposal site associated with RTN 3-36027. PCBs were detected at a maximum concentration of 66 mg/kg.

4.0 RECENT INVESTIGATIONS

Soil Precharacterization Testing

On May 12, 2022, soil samples were collected with a direct push drill rig from depths between 2 and 10 feet to precharacterize soil for off-site disposal. Soil X Corp. was CDW's subcontractor that

performed the drilling. Nine (9) borings (GP3-1 through GP3-9) were completed to depths of 15 feet. The borings were completed in the fill area where soil excavation is anticipated, and soil samples were collected in five-foot increments in disposable plastic sleeves. Soil from the 2-10 foot depth of borings GP3-2, GP3-4, GP3-5, GP3-6, and GP3-8 were collected and composited into a single sample, Comp #1 (2-10ft). Groundwater was encountered at approximately 12 feet below grade during drilling.

Soils observed were brown and black sandy fill soils over gray, native silty fine to medium sand. The top two feet was observed to be brown and tan fill soils. The interval from approximately 2 to 10 feet was observed to be primarily black fin to medium sand with various solid wastes including brick, concrete, ash layers, coal, and some building materials of pasty caulking, glass and metal. A Site Plan showing sampling locations is included as Figure 2. Soil boring logs are included in Appendix A.

Soil samples were field screened for total organic volatiles (TOVs) with a MiniRae Lite® photoionization detector (PID) calibrated to an isobutylene standard. The results of PID screening showed levels of TOVs between 0.0 and 7.8 parts per million by volume (PPMV) in the samples screened. PID screening results are included in Table 1.

The composite sample was submitted to Contest Laboratories for analyses for Total Petroleum Hydrocarbons (TPH), Semi-Volatile Organic Compounds (SVOCs), Polychlorinated Biphenyls (PCBs), MCP14 metals, TCLP lead, pesticides, herbicides, pH, specific conductance, reactivity, and flashpoint. A discrete sample for VOC analysis was obtained from boring GP3-5 from a depth of 4-6 feet, because that sample exhibited the highest TOVs during field screening.

The results of the analyses are included in Table 2. The complete laboratory results are included in Appendix B.

5.0 SURROUNDING RECEPTORS

There are approximately 50 full-time workers at the property that the Site is located on. These workers primarily work on other portions of the property, and not specifically within the Site boundaries. Potential future human receptors include children and adults. Camp Cedar Hill, a girl scout camp, is the only institution located in the area, but is located further than 500 feet north of the Site. Based on the 2010 census which lists the population density of Waltham as 4,763.3 people per square mile, the estimated residential population within ½ mile of the Site is approximately 3,739 people.

CDW obtained a Priority Resources Map from MassGIS. According to the map, there are no municipal water supply wells, no Interim Wellhead Protection Areas, Approved Zone II Areas, Sole Source Aquifers, Public Water Supplies, High-yield Potentially Productive Aquifers, Surface Water



Supply Zone A, Public Surface Water Supply Areas, certified or potential vernal pools, Natural Heritage and Endangered Species Program (NHESP) Estimated Habitat of Rare Wildlife, or Areas of Critical Environmental Concern (ACECs) located within one-half mile of the Site. The Site parcel is designated as Protected Open Space identified as "Waltham Agricultural Fields". The nearest surface water body is the Beaver Brook located approximately 150 feet south of the Site. The nearest mapped wetlands are located approximately 300 feet southeast of the Site.

The surrounding area is served by the Massachusetts Water Resource Authority (MWRA) municipal drinking water supply system. Drinking water is obtained from surface water reservoirs located in central and western Massachusetts. No water supply wells are known to be located within 500 feet of the Site.

6.0 TSCA APPLICABILITY AND PERFORMANCE BASED PLAN

PCBs that enter the environment under certain circumstances are required to be managed under the Toxic Substances Control Act (TSCA) and the regulations found at 40 CFR 761. Based on the history of the Site as seen through aerial photographs, the PCBs found in soil were likely placed prior to 1970. TSCA's definition of PCB remediation waste includes "materials disposed of prior to April 18, 1978 that are currently at concentrations greater than 50 ppm regardless of the concentrations of the original spill." The soils at the Site meet this definition, therefore remediation is required to be in accordance with TSCA's regulations for PCB remediation waste.

Regulations for TSCA Performance Based Plans in accordance with 761.61(b) require that the area of concern be characterized sufficiently to delineate the extent of PCBs. While only 3 PCB samples have been analyzed (one composite and 2 grab), the area of fill has been visually defined based on 18 borings. Soil containing PCBs at concentrations equal to or above 1 mg/kg will be excavated and disposed at a TSCA approved facility. After excavation, confirmatory soil sampling will be conducted in accordance with TSCA Subpart O.

7.0 REQUIREMENTS FOR RELEASE ABATEMENT MEASURES

In accordance with 310 CMR 40.0441, Release Abatement Measures are intended to reduce risks at a disposal site and/or increase the cost effectiveness of response actions by allowing the implementation of certain accelerated remedial actions to stabilize, treat, control, minimize, or eliminate releases until such a time as a Permanent or Temporary Solution is achieved as described in 310 CMR 40.1000, or until Comprehensive Remedial Actions can be implemented, as described in 310 CMR 40.0800.



Elevated concentrations of lead, chromium, 4,4-DDT, and PCBs were detected in soil at the Site. To reduce overall Site risk, the provisions of this RAM Plan will guide the management of excavated soil. There currently no plans for development at the Site. It is estimated that approximately 500 cubic yards of soil may be excavated for off-site disposal.

8.0 RELEASE ABATEMENT MEASURE - OBJECTIVES

The overall objective of the RAM is to excavate and dispose of soil with elevated concentrations of metals, pesticides and PCBs. The material is also known to contain a certain amount of concrete, glass, and wood. The specific objectives of the RAM are the following:

- Reduce risk to human health, safety, public welfare, and the environment from potential exposure to metals, pesticides, TPH and PCBs in soil.
- Visually monitor for dust during soil excavation or other soil movement activities.
- Excavate, stockpile, and manage the off-site disposal of up to 500 cubic yards of soil.
- Conduct confirmatory soil sampling for EPH, pesticides, and metals, and PCBs in accordance with TSCA Subpart O.

9.0 RELEASE ABATEMENT MEASURE - SPECIFIC PLANS

This RAM Plan addresses the excavation and off-site disposal of contaminated soil from the areas shown on Figures 2 and 3. The proposed RAM Plan will be conducted in accordance with a site-specific Health and Safety Plan. Managed soil will be handled to minimize excessive movement and to reduce the potential for air emissions. Confirmatory sampling will be conducted to evaluate post remedial risk to human health.

9.1 Public Involvement

Written notifications will be provided to the City of Waltham Mayor's Office and the City of Waltham Health Department providing information on the purpose, nature, and expected duration of the RAM, and any personal protective equipment (PPE) that will be used. A copy of each of these notification letters is attached to this report as Appendix C.

9.2 Site Security

The Site is located in the rear of the property in a relatively isolated wooded area. The Site will be secured with temporary construction fence, which will remain during the duration of the excavation activities. This area will continue to be off limits to the general public during construction activities.



9.3 Soil Excavation, Management and Disposal

The current and proposed RAM soil excavation activities involve Site preparation, soil excavation, stockpiling and loading into trucks or containers for off-site disposal or reuse. Level D PPE will be required for work within the excavation area.

Site preparation includes the clearing and preparation of the staging, excavation and loading areas, along with designated stockpile and staging areas.

The proposed area of excavation is approximately 50 feet by 30 feet by 9 feet deep. An estimated soil volume of up to 500 cubic yards is anticipated to be generated based on assessment and precharacterization soil results.

TCLP lead results did not show any exceedances of criteria that would classify the material as a hazardous waste. Soils slated for offsite disposal will be stockpiled on and covered with 10 mil polyethylene sheeting and restricted from public access within the fenced area. Loading will occur at the area of excavation where soil will be stockpiled and transported through the Site on existing gravel access roads. Because the soil is regulated under the MCP, a MassDEP Bill of Lading will be used to transport the soil to the appropriate facility.

Clean fill will be brought on-site to replace excavated contaminated soils. Equipment used at the Site that comes in contact with contaminated soil will be decontaminated with water and detergent prior to leaving the Site.

9.4 Confirmatory Soil Sampling

After excavation, a sufficient number of confirmatory soil samples will be collected to evaluate the soil excavation. In accordance with Subpart O of TSCA, soil samples will be collected every 1.5 meters in a grid pattern. If feasible, and based on visual inspection after excavation, samples may be composited (5-point composites) and results evaluated to ensure that the allowable standard could not be mathematically exceeded.

9.5 Excavation Dewatering

Depth to groundwater on the property was measured between 10.82 and 12.69 feet below grade. Depth to groundwater in well GP1-7MW located at the Site was measured at 12.69 feet below grade. The excavations are expected to terminate at a maximum depth of approximately 8-10 feet based on existing results. Therefore, dewatering is not anticipated. If required, temporary excavation dewatering will be localized and directed into a nearby excavation.



10.0 SCHEDULE

Soil excavation and management will commence upon submittal of this RAM Plan to MassDEP. The duration of RAM activities including any soil excavation and stockpiling and off-site disposal is estimated to last up to two weeks. The RAM will be considered complete when all remediation waste has been removed from the Site.

If needed, a RAM Status Report will be submitted to MassDEP 120 days after initial submission of the RAM Plan and every six months thereafter, if needed. A RAM Completion Report will be submitted within 60 days of the completion of remedial actions at the Site.

11.0 REMEDIATION WASTE

Remediation waste generated at the Site will consist of soil contaminated with metals, pesticides and PCBs. Up to 500 cubic yards of soil is anticipated to be generated as a result of soil excavation activities. Because the soil will be managed under a Performance Based Cleanup Plan, disposal is limited to off-site disposal as a TSCA waste.

12.0 ENVIRONMENTAL MONITORING PLAN

The following environmental monitoring plan has been implemented and is proposed to be continued at the Site during the course of the proposed RAM:

12.1 Excavation Air Monitoring

Because SVOCs are expected, ambient air will be monitored every 15 minutes during heavy excavation with a PID using an 10.6 eV lamp. If a level of 10 ppmv of total organic vapors is met or exceeded in ambient air for a period of 15 minutes or longer (two consecutive readings), mitigative measures will be taken. These may include a temporary stop in work, or ventilation with fans to control vapors.

12.2 Dust Monitoring

During implementation of this RAM Plan, short-term exposure to contaminated soil could occur primarily through dust generation while performing necessary excavation and materials handling tasks. To mitigate potential exposure by site workers and/or off-site receptors, engineering controls will be implemented to govern any activity that might disturb or expose contaminated soils. Dust suppression will occur throughout excavation activities to minimize potential off-site migration of airborne contaminants.



To mitigate dust emissions, the Construction Contractor will utilize the following specific measures:

- Wetting agents will be used regularly to control and suppress dust that may come from exposed excavations, chipping, sawing, etc.
- Gravel tracking pads and a wheel wash will be provided at the construction entrance.
- Construction practices will be monitored to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized and that any emissions of dust are minimal.

All soils, when transported upon public roadways, shall be covered to minimize fugitive dust, and where necessary, truck tire and undercarriage washing shall be employed to minimize tracking of soils onto public roadways.

13.0 PERMITS & FEES

Since this RAM Plan is being prepared after Tier Classification for both Disposal Sites, no RAM Plan submittal fee is required. In accordance with 310 CMR 40.0443(2), subsequent to the receipt by MassDEP of a complete RAM Plan, approval is not required from MassDEP to conduct the RAM. The following permits will be obtained from public and private agencies prior to implementation of the RAM Plan:

13.1 Dig-Safe

Utility clearance was requested from Dig-Safe at least 72 hours prior to initiating the RAM activities. Utility marking were incorporated in the Site Plan to show their locations. Entities that are not subscribers to the Dig-Safe network (such as the local water and sewer department) were contacted directly for utility marking.

13.2 Trench Excavation Permit

If applicable, based on the size of the excavation, the excavation contractor will obtain a trench permit from the City of Waltham. The permit will be kept on the Site during excavation activities.

14.0 GREENER CLEANUPS

In accordance with 310 CMR 40.0191(3)(e), Response Action Performance Standard (RAPS), the project work will incorporate relevant and feasible opportunities for achieving green remediation goals. These include:

- Minimizing total energy use while maximizing the use of renewable energy;



- Minimizing emissions of greenhouse gases and other air pollutants;
- Minimizing water use and impacts to water resources;
- Reducing, reusing and recycling materials and waste; and
- Avoiding or reducing adverse impacts to ecosystems and land resources.

Soil excavation and off-site disposal was deemed the most feasible remedial alternative. Soil excavation and off-site disposal was limited to only those soils that reduce overall human health risk.